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ABSTRACT

This monograph provides an interpretation of the work and ideas of Paulo Freire and describes an attempt to use his methods in a preliminary trial of a small scale nutrition program in four villages in Maranhao State, Northeast Brazil. The introductory chapter indicates the seriousness of the nutritional problems of the rural poor as well as the psychological effects of oppression and suggests that the philosophy and methods of Friere provide a framework for improving the villagers' lives. The next two chapters introduce Freire's educational ideas and methods and are followed by an application of these methods to nutrition education. An exploratory, three month study of the implementation of a nutrition education program is described and discussed in the four remaining chapters. The purpose and design of the study, aspects of the people and locale studied, transcripts of discussions in community meetings, as well as data on food availability, food consumption, clinical signs, anthropometric measurements, their correlations with dietary information, and the process of sharing findings with community members are reported. The final chapter reflects on and informally assesses the use of the Freire Method in the education project. Related materials are appended. (Author/RH)

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USING THE METHOD OF PAULO FREIRE IN NUTRITION EDUCATION: AN EXPERIMENTAL PLAN FOR COMMUNITY ACTION IN NORTHEAST BRAZIL

by Therese Drummond

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The writer would like to thank the many persons who helped her during the project, especially the Canadian priests and sisters in Alcantara, and the beautiful, friendly people in the four villages studied. Last but not least, deepest gratitude is offered to Paulo Freire whose thought and ideals inspired this work and whose four-day stay at Cornell in June of 1975 made possible his approval of it and his promise of friendship and help in further studies of the application of his method in the field of Nutrition.

PREFACE

Therese Drummond, the author of this Monograph, worked for several years in Northeast Brazil before coming to Cornell in 1973. Like other nutritionists both in industrialized and non-industrialized countries, she came to realize both that changes in dietary practices were difficult to obtain, and that traditional nutrition education had seldom been shown to be successful in improving nutritional status.

Inspired by the writings of Paulo Freire, Therese Drummond returned to Brazil in 1974 to see if his ideas would lend themselves to nutritional work in the small villages of Northeast Brazil where malnutrition is a major problem in the young child.

The present monograph is an interpretation of the work and ideas of Paulo Freire, and describes an attempt by Therese Drummond to use Paulo Freire's methods for a preliminary and small trial in initiating a nutrition and health program.

I believe that we in the nutritional sciences need to break new ground, to use the work of other disciplines, and above all to be sympathetic and humane to the deprived peoples we are trying to help. For this reason the work of Therese Drummond prepared as part of a larger thesis deserves to be available to a wider audience. This may help others to think about what they are doing and perhaps some may consider adopting this new approach.

This Monograph inspired by a humane and understanding philosopher and educator has been written by a very sympathetic and dedicated nutritionist who is prepared to devote her life to the underprivileged of the world. I am honored to have been associated with this work and I welcome the opportunity to contribute tn a small way to the dissemination of the ideas expressed in this Monograph. It is hoped that both Therese Drummond and Paulo Freire will soon be able to further this work in a new program in the young nation of Guinea Bissau.

Michael C. Latham, M.D.
Professor of International Nutrition
Cornell University

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"...a morte de que se morre de velhice antes dos trinta
de emboscada antes dos vinte
de fome um pouco por dia."

(...the death that one dies of old age before thirty
trapped before twenty
and of hunger a little every day)

MORTE E VIDA DE SEVERINA

Joao Cabral de Melo (1973)

I. INTRODUCTION

This work was carried out in the State of Maranhão, in Northeast Brazil. Here, vestiges of an ancient past cause wonder as to how transient waves of luxurious prosperity could have left so much of the population in misery. The capital, São Luis, with its charming sense of antiquity, boasts new asphalt roads. However, the thousands huddled together in the squalor of slums and swampland (where houses are built on stilts because the tide covers the land for periods of each day) give testimony to the fact that the majority of Brazilians still haven't experienced the "Brazilian Miracle".

In "Ouvi os Clamores do Meu Povo" (I Have Heard the Cries of My People), a document of the Catholic Bishops of the Northeast (Bishops, 1973), which was well distributed before the last 200 copies were confiscated by the Police, it is stated that "data from the 1970 census revealed that only 3.3% of the economically active population in the Northeast earned more than 500 cruzeiros (~$83) a month and only 0.86% earned more than 1000 cruzeiros (~$166). In Piaui and Maranhão, for an economically active population of 1,470,000 persons, only 955 earned more than 2000 cruzeiros (~$333) a month."

The document tells of problems in many areas of life--and death. Infant mortality for the Northeast as a whole is 180/1000 live births. In the capitals, where medical assistance is concentrated, it is still 98/1000. In the total of all deaths, 47% occur before 5 years of age.

As in most places where there is poverty, Maranhão suffers a serious problem of malnutrition. Virtually all the children admitted to the São Luis Children's Hospital are undernourished, and 3/5 of them have manifest signs of kwashiorkor, including bilateral edema. (At least, this was the case in 1972, as verified by personal observation.) A like nutritional situation exists in the four remote villages where this study was made. In the rural areas there is almost always the opportunity to grow mandioca (cassava), and thus the traditional weaning diet, which consists almost completely of a gruel made from this root crop, is readily supported.

Undernourishment, with resulting morbidity and mortality in young children, is the more serious because it is not recognized as a solvable problem, but accepted as a fact of life. Dust rises in the dry season, monsoon rains come, meager food stores are gathered, landowners demand half the crop, food stores run out, babies are born, babies die--it's all part of the rhythm of life. An inexorable fate, benignly called the "Will of God", determines all. In his book "Pedagogy of the Oppressed", Paulo Freire (1970 (1): 48) says,

> "When superficially analyzed, this fatalism is sometimes interpreted as a docility that is a trait of national character. Fatalism in the guise of docility is the fruit

of an historical and sociological situation, not an essential characteristic of a people's behavior."

Freire explains that another characteristic of oppressed peoples is derived from their internalization of the opinion the dominating classes hold of them. So often do they hear that they are good for nothing and are incapable of learning anything--that they are sick, lazy and unproductive--that in the end they become convinced of their own uselessness. With this view of themselves, they are like "things" owned by the oppressor. For the latter, to be is to have, almost always at the expense of those who have nothing. For the oppressed, at a certain point, to be is to depend on the oppressor.

A little later, Freire (1970 (1): 55) quotes Erich Fromm: "It is not enough that men are not slaves; if social conditions favor the existence of automatons, the result will not be love of life, but love of death.", and adds, "The oppressed, who have been shaped by the death-affirming climate of oppression, must find through their struggle the way to life-affirming humanization, which does not lie simply in having more to eat (although it does involve having more to eat and cannot fail to include this aspect.)"

People living in conditions like those in most of Maranhão have been reduced to "objects" by their situation. In order to regain their humanity they must cease to be "things" and be allowed to participate in a humanizing process. My hypothesis is that nutrition education has a part to play in this humanizing process and when it does, not only will the process be helped along but the nutrition education itself will be more effective, bringing about deeper and more real changes in the food habits of the people.

Health, and especially health of their young children, touches a crucial point in the lives of these people. The desire for health is, in a way, intimately connected with the survival instinct. What could be a deeper motivating factor? If people, whose basic drive is to be, cannot become involved on the nutritional level, then it is doubtful that they could become involved on any level. Even though this fact is not brought out by many, I believe that it is one that should be seriously considered by those striving to "bring to birth the humanizing process".

At the same time the nutrition education, instead of coming from the top down with a paternalistic social action, becomes an action starting with the people, growing out among them--real growth rather than propaganda, management, or manipulation. Andreas Fuglesang (1973 (1): 41), in his book, APPLIED COMMUNICATION IN DEVELOPING COUNTRIES, says,

"In the development of consciousness nobody is the teacher. The teacher is just one of the group. The group is

teaching itself. It cannot be an objective to transfer knowledge and values from a group in society which is powerful to groups which are less powerful. It is the dialogue between groups which can bring society forward and it is the dialogue which is the tutor in the circle. Each man and woman is a creative being who has knowledge and experience of value for the development of the community and society at large. It is a complete misconception that village people are ignorant. They just have another type of knowledge.

"To help people to become conscious of their potential as creative beings, to make them see that they can control their environment and themselves in a better way, is the task of the field worker, whatever his professional starting point."

In an earlier chapter Fuglesang (1973 (1): 29) had questioned:

"...we should realize that the villagers also have other reasons for not making long-term plans. Governments and politicians all too often intrude into their lives with capricious decisions and with no really new opportunities. Besides, ask yourself the simple question: Why should they? Motivation comes first with the need and the need comes just when new opportunities are there:

"The essence of development work is not to try to change people, but to create such new opportunities. Then, people will change themselves.

..."Has the standard extension talk, whatever the subject, ever really succeeded? Must the development message originate in the village community, before it can have any effect ON it?"

Freire contrasts his pedagogy with that of the "banking system of education. In the latter, education becomes an act of depositing, in which the teacher is the depositor and the students are allowed to receive, file, and store the deposits. With Freire, the educational goal becomes the posing of problems of men in their relationship with the world. "Problem-posing" education rejects communiqués and embodies communication, regards dialogue as indispensable to the act of cognition which unveils reality, and stimulates true reflection and action upon reality.

Further explanation of the philosophy of Paulo Freire will be given in the following chapter. To me the advantages of this type of education in development of any kind are evident, but I hope they will become clearer and more accentuated as the project in the villages of Northeast Brazil is reported.

Although my hypothesis could never be proven in a three-month period, a framework for testing its workability was set up. Certain indications are given, in the project to be described, that such an approach would be feasible and useful. The question is introduced as to whether a method like this would be received differently in the villages where work had been done previously in community organization. Nutritional status of the children under four was studied and 24-hr recalls were done on their dietary intake. These studies served as preparation for the community meetings, and could be of use as base-line data for future surveys.

II. PHILOSOPHY OF PAULO FREIRE

A. The Influence of Freire's Philosophy

Since limitations of time and situation greatly curtailed the actual use of the method of Paulo Freire in the experimental plan to be decribed, the real influence on this specific work was brought about by the reflective consideration of his philosophy. This influence provided some aspects of a working guideline to differentiate between practices in line with a development measured principally by economic growth, and those conducive to a "global social process". In the last twenty years the term "development" has been used to express the aspiration of poor nations. Today, however, it sometimes conveys a pejorative connotation, especially in Latin America. Many believe that a humanistic view places the notion in a broader context which involves a change of perspective. They prefer to call it liberation. (Gutierrez, 1971) A study of Paulo Freire's works prepares one to be able to see nutrition and other facets of "development" in a way that not only shows their place in "global social process" but makes it possible to cooperate in that liberating process by these very activities.

B. A Personal Note on Freire

Paulo Freire was born in Recife, the largest city of Northeast Brazil, in 1921. In spite of the fact that his family suffered much as a result of the economic crisis of 1929, he did manage to progress well in his studies. He finished law school but after being presented with his first case and talking with the young dentist, a timid and vacillating man, who was being prosecuted for his debts, Freire decided that he was not meant to be a lawyer. He turned to the field of education and his thought on the philosophy of education was first expressed in 1959 in his doctoral dissertation at the University of Recife. He became the Director of the Cultural Extension Service at that University and the methodology he developed was widely used in literacy campaigns in Brazil. However, it was considered such a threat to the old order that Freire was jailed immediately after the military coup in 1964 and then exiled. He worked in agrarian reform in Chile and is now serving

as Special Consultant to the Office of Education of the World Council of Churches in Geneva. His work has made a profound impact not only in the field of education but also in the overall struggle for development in Latin America. (Cuslar, 1975)

C. An Introduction to the Thought of Freire

1. At the University

It is instructive to study the works of Paulo Freire chronologically to see the evolution of his thought: the constant new awareness which enables him to move beyond the past, transcending but not repudiating his former writings and actions. His first little book or essay, A PROPÓSITO DE UMA ADMINISTRAÇÃO (Freire, 1961), is an account of the struggles of the administration to make the University of Recife a relevant institution, capable of combating the alienation common in universities of developing countries. He speaks of the problems that developing societies have when, overwhelmed with feelings of self-deprecation, of inferiority, they are driven to importing formulas from other countries. Because the remedies are merely transplanted rather than coming from an objective and critical analysis of their context, results don't bear fruit. He brings out the idea that only a critical consciousness of problems will lead to an integrated plan and promise of future success in the work which the administration was trying to accomplish.

2. "Conscientization": The Thread Through All His Work

The unifying thread of the work of Paulo Freire is critical consciouness as a driving force for bringing about cultural emancipation. "Conscientização" (the word made famous by Paulo Freire) represents the awakening of critical awareness. A critical consiousness is characterized by depth in the interpretation of problems; by the substitution of causal principles for magical explanations; by the testing of one's "findings" and by openness to revision; by refusing to transfer responsibility; by the practice of dialogue rather than polemics; and by keeping what is valid in both old and new.

3. Education as the Practice of Freedom

In EDUCATION AS THE PRACTICE OF FREEDOM, Freire (1973 (1): 4) explains some of the basic philosophy underlying his early work of teaching literacy:

> "Integration with one's context, as distinguished from adaptation, is a distinctively human activity. Integration results from the capacity to adapt oneself to reality plus the critical capacity to make choices and to transform that reality. To the extent that man loses his ability to make choices and is subjected to the choices of others, to the extent that his decisions are no longer his own because they result from external prescriptions, he is no longer integrated. Rather he has adapted. He has "adjusted"...

> The integrated person is person as Subject. In contrast, the adaptive person is person as Object, adaptation representing at most a weak form of self-defense. If man is incapable of changing reality, he adjusts himself instead. Adaptation is behavior characterisitc of the animal sphere: exhibited by man, it is symptomatic of his dehumanization."

If persons are to be truly human, they must enter into the domain of History and Culture which is theirs alone. They do this by inheriting acquired experience, creating and re-creating, integrating themselves into their context and responding to its challenges. Manipulation, by organized advertising, ideological or otherwise, puts them outside the realm of decisions, dehumanizes them.

4. A Need For a New Type of Education in Brazil

Freire explains that in the 50's and early 60's Brazil was in a position of deep transition and unfortunately the people were generally unprepared to evaluate the transition critically. The situation demanded an education that would enable men to discuss courageously the problems of their conditions and circumstances--and to intervene in that context, in contrast to an education of "domestication" which implies a type of training where the educator learns responses predetermined by the educator. Brazilians began to fall into sectarian positions instead of opting for radical solutions. Sectarianism is predominantly emotional, arrogant, antidialogical and thus anticommunicative. It is a reactionary stance whether on the part of a rightist or a leftist. Disrespecting the choices of others, the sectarian tries to impose his choice on everyone else and resorts to activism and sloganizing. The radical (in Freire's sense of the term, one who goes to the root to seek thoughtful solutions) rejects activism and submits his actions to reflection. He sees society as something unfinished, not as something inexorably given, and has a strong sense of social responsibility.

5. Two Types of Education: Banking vs. Problem-posing Education

In almost all of his works, Freire has stressed the basic philosophical differences in two types of education. Most education in the world today is of a narrative type, filling up the empty vessels. Freire calls it the banking concept of education. In this system, knowledge is a gift bestowed by the one in authority, the teacher, upon the so-called ignorant, the student, who passively receives the dispensation from on high. That there is a dichotomy in the world is implicit in the banking system. Man is in the world, not with the world, or with others. Man is a mere spectator, not a re-creator.

> "It follows logically from the banking notion of consciousness that the educator's role is to regulate the way the world 'enters into' the students. His task is to organize a process

> which already occurs spontaneously, to 'fill' the students by making deposits of information which he considers to constitute true knowledge. And since men 'receive' the world as passive entities, education should make one more passive still, and adapt them to the world. The educated man, because he is better 'fit' for the world...
>
> "Verbalistic lessons, reading requirements, the methods for evaluating 'knowledge', the distance between the teacher and the taught, the criteria for promotion: everything in this ready-to-wear approach serves to obviate thinking." (Freire, 1970 (1): 62-63)

Those truly committed to liberation reject the banking concept, adopting instead the concept of men as conscious beings. In liberating education, first of all, the teacher-student relationship must be resolved. The relationship must become dialogical. There is a new joint responsibility in which teacher and students teach each other, mediated by the world. Matter to be learned is not the private property of the teacher but rather a basis for reflection. Students are critical co-investigators with the teacher.

6. Pedagogy of the Oppressed

The writings of Freire in the 60's exhibit what he calls "the naiveté of his thought" at that time. PEDAGOGY OF THE OPPRESSED, his most famous work, published in Portuguese in 1968 and later translated into several languages (English, 1970), shows how his thought has grown through his personal "praxis" and comes to dwell on the way education can be used either as a manipulative tool to control the masses or as a liberating, humanizing force.

> "The pedagogy of the oppressed, animated by authentic, humanist (not humanitarian) generosity, presents itself as a pedagogy of man. Pedagogy which begins with the egoistic interests of the oppressors (an egoism cloaked in the false generosity of paternalism) and makes of the oppressed the objects of its humanitarianism, itself maintains and embodies oppression. It is an instrument of dehumanization...
>
> "A situation in which some men prevent others from engaging in the process of inquiry is one of violence. The means used are not important: to alienate men from their own decision-making is to change them into objects." (Freire, 1970 (1): 39)

7. Dehumanizing Education on the Part of Both Right and Left

This alienation may occur as the result of education by sectarians of either the right or left wing. The former believe in a well-behaved present which they attempt to maintain by the control of people and

situations. The latter believe in a pre-determined future which they attempt to facilitate by a sloganizing direction of the activism of men. Both treat history in a proprietary fashion. They make their own truth; it is not the truth of men who work together to build a future. Freire stresses the necessity of praxis (the unity of reflection and action) for the humanization of persons. He points out that in the case of a revolution, the taking of power is only a decisive moment in the process. To be a truly humanizing process, the educational, dialogical quality of revolution, which makes it a "cultural revolution" as well, must be present in all its stages.

8. Cultural Synthesis vs. Cultural Invasion

A "cultural invasion" of the people's world view, by which the leaders of the revolution impose or persuade to their view, is just as unacceptable as a mere adaptation to the (often naive) aspirations of the people. The solution lies in synthesis: the leaders must on the one hand identify with the people's demands but on the other, they must pose the meaning of those very demands as a problem. Cultural invasion serves the ends of manipulation, which in turn serves the ends of conquest, and conquest the ends of domination. Cultural synthesis serves the ends of organization: organization serves the ends of liberation.

Culutral invasion is also very often practiced by the developed nations towards the developing, sometimes unconsciously, and with a certain conviction about the benefits they are transmitting. Being convinced of the "innate goodness" of their system, they want to preserve that and share the excess with those who are "less fortunate".

> "Antidialogical action explicitly or implicitly aims to preserve, within the social structure, situations which favor its own agents. While the latter would never accept a transformation of the structure sufficiently radical to overcome its antagonistic contradictions, they may accept reforms which do not affect their power of decision over the oppressed. Hence, this modality of action involves the conquest of the people, their division, their manipulation, and cultural invasion. It is necessarily and fundamentally an induced action. Dialogical action, however, is characterized by the supersedence of any induced aspect...
>
> "In cultural invasion, the actors draw the thematic content of their action from their own values and ideology; their starting point is their own world, from which they enter the world of those they invade. In cultural synthesis, the actors who come from 'another world' to the world of the people do not do so as invaders. They do not come to teach or to transmit or to give anything, but rather to learn, with the people about the people's world." (Freire, 1970 (1): 181)

For cultural invasion to take place, it isn't even necessary for the actors to go to the invaded culture. In fact, more and more, this phenomenon is being accomplished by technological instruments or by certain types of technology.

D. A Frame of Reference Provided by the Philosophy of Freire

When the philosophy of Paulo Freire is accepted as a basic frame of reference, or even allowed to influence one's ideas of education for development, it is clear that one's attitudes will be different from those commonly encountered among expatriates working for reform and growth in developing nations. The goals of a person thus influenced are intimately involved with a "global social process" for which a necessary prerequisite among the participants is a movement of search and creativity, having its seat of decision in the searcher.

III. METHOD OF PAULO FREIRE

It has been seen that the philosophy of Paulo Freire implies a basic stance in education which regards the people being educated as co-workers with the teachers who are learning, and the process as a "dialogic exchange" involving problem-posing, reflection and action. His actual method included "conscientization" (development of a critical consciousness) and literacy training. A brief explanation of the literacy method will be given here but more emphasis will be given to the study of the "conscientization" process, since this is where concern for nutrition can aid in humanization and where the process can bring about more real and lasting changes in food habits.

A. A Critical Understanding of Culture

Freire and his colleagues felt that even before teaching the illiterate to read, they could help them overcome their magic or naive understanding and develop an increasingly critical understanding. Toward this end, the first dimension of the program content was the anthropological concept of culture; that is, the distinction between the world of nature and the world of culture--the active role of men in and with their reality. To introduce the concept of culture, it was broken down into its fundamental aspects. Then, on the basis of this breakdown, ten existential situations were "codified" or represented visually. These situations were presented in pictures painted by Francisco Brennand. Brief descriptions of some of them, together with a summary of how they were used, are given in Appendix 1. Each representation contains a certain number of elements to be "decoded" by the group participants. The dialogue becomes dynamic to the degree that the content of the codification corresponds to the existential reality of the groups.

> "Many participants during these debates affirm happily and self-confidently that they are not being shown 'anything new, just remembering'. 'I make shoes', said one, 'and now I see that I am worth as much as the Ph.D. who writes books.'
>
> "'Tomorrow', said a streetsweeper in Brasilia, 'I'm going to go to work with my head high'. He had discovered the value of his person. 'I know that I am cultured', an elderly peasant said emphatically. And when he was asked how it was that he knew himself to be cultured, he answered with the same emphasis, 'Because I work, and working I transform the world'." (Freire, 1973 (1): 47)

All of these discussions are critical, stimulating and highly motivating. The illiterate perceives that it is necessary to learn to read and write in order to participate in the transmission of culture, and prepares to become the agent of this learning. Acquiring literacy involves an attitude of creation and re-creation, a self-transformation producing a stance of intervention in one's context. The educator's role is then simply to offer the tools by which the illiterate can teach himself to read and write.

B. Difference Between Responses in Brazil and Chile

However, an interesting insight is given into the Brazilian character by the adaptation which had to be made in Freire's method when he began to work in Chile (where even the peasants are more influenced by a European mentality). In Brazil, the actual literacy training was preceded by several evenings spent discussing the concept of culture. In Chile, this stage had to be incorporated directly into the learning of reading and writing or else the people began to lose interest at this seeming waste of time, in contrast to the Brazilians who had regarded this discussion about themselves as something pleasing and creative. (Sanders, 1970)

C. Literacy Training

Freire mistrusts the use of primers because even when they avoid the pitfall of casting the learner in the role of the object rather than the Subject of his learning, they donate words and sentences to the illiterate which really should result from his own creative effort. Freire opted instead for the use of generative words--those whose syllabic elements offer, through re-combination, opportunities for the creation of new words.

The program is made up of several phases:

Phase I: Researching the vocabulary, life and concerns of the groups with which one is working to find words most weighted with existential meaning, as well as words and expressions linked to their experience.

Phase II: Selection of the generative words from the vocabulary which was studied according to phonemic richness, phonetic difficulty and pragmatic tone.

Phase III: The creation of "codifications" or the representation of typical existential situations of the group with which one is working.

Phase IV: The elaboration of agendas, which should serve as mere aids to the coordinators, never as rigid schedules to be obeyed.

Phase V: The preparation of "discovery cards" with the breakdown of phonemic families which correspond to the generative words. (An explanation of how these generative words, phonemic families and discovery cards are used in teaching literacy is given in Appendix 2.)

D. Researching the People's "Thematic Universe"

The first phase actually includes much more than the research of vocabulary of the people. Since the program content of education must be the reality which mediates men and their perception of it, Freire proposes the investigation of what he calls the people's "thematic universe" or "generative themes". The ideas, values, concepts and hopes of an epoch, as well as the obstacles which impede man's full humanization, constitute the themes of that epoch. It is this complex of interacting themes, called "generative" because they contain the possibility of unfolding into again as many themes, which must be the center of the program content. The researchers, after a preliminary acquaintance with the area through secondary sources, initiate the investigation by getting a significant number of persons to agree to an informal meeting during which they can talk about the objective of their presence. In this meeting they explain the reason for the investigation and ask for volunteers among the participants to serve as assistants. Thus, even the first investigating team has members from the area itself. Some may object to the inclusion of the people as investigators in the search for their own meaningful thematics, or may feel that their influence will "adulterate" the findings and thereby sacrifice the objectivity of the investigation. Freire holds that this view mistakenly supposes that themes exist, in their objective purity, outside men. Actually, themes exist in men in their relations with the world, with reference to concrete facts. There is a relation between the given objective fact, the perception men have of this fact, and the generative themes.

The investigators never force themselves, but act with sympathetic understanding towards what they see. Although they naturally have their own values which influence their perceptions, it is hoped that the people of the area will come to share only one of these values--one which cannot be imposed; that is, a critical perception of the world. Such a perception implies an open method of approaching reality in order to unveil it.

Freire reports the observation of a Brazilian sociologist, Marie Edy Ferreira, that thematic investigation is only justified to the extent that it returns to the people what truly belongs to them; to the extent that it represents, not an attempt to learn about the people but to come to know with them the reality which challenges them.

The team, made up of specialists and the representatives of the area, observes all the activities of the community. After each observation visit, each member of the team writes up and discusses a report of these activities. In evaluation meetings all the reports are discussed, giving each team member new insights into the situations studied. Representatives of the area participate in all meetings and in the dialogic exchanges new ways of looking at the whole emerge as the parts seen and analyzed by participants are reassembled. The more these situations are taken apart and reintegrated the more chance there is of discovering the contradictions in the lives of the people. The investigators must not stop there, because what is necessary is to discover the level of consciousness of these contradictions.

> "Intrinsically, these contradictions constitute limit-situations, involve themes, and indicate tasks. If individuals are caught up in and are unable to separate themselves from these limit-situations, their theme in reference to these situations is fatalism, and the task implied by the theme is the lack of a task. Thus, although the limit-situations are objective realities which call forth needs in individuals, one must investigate with these individuals their level of awareness of these situations." (Freire, 1970 (1): 105)

Freire points out the difference between "real consciousness" and "potential consciousness" as explained by Goldman:

> "Real consciousness implies the impossibility of perceiving the 'untested feasibility' which lies beyond the limit-situations. But whereas the untested feasibility cannot be achieved at the level of 'real (or present) consciousness', it can be realized through 'testing action' which reveals its hitherto unperceived viability. The untested feasibility and real consciousness are related, as are testing action and potential consciousness... "Accordingly, the fact that the investigators may in the first stage of the investigation approximately apprehend the complex of contradictions does not authorize them to begin to structure the program content of educational action. This perception of reality is still their own, not that of the people." (Freire, 1970 (1): 105-6)

E. Codification and Decoding of Existential Situations

When the complex of contradictions is understood the team chooses some of these contradictions to be developed for thematic investigation.

The rationale behind the method is that when people are faced with a block in not being able to interpret their reality because of being so close to it that it appears dense and impenetrable, they become able to do so when they see and discuss that reality represented in a typical existential situation "codified". The coding of an existential situation is the representation of that situation, showing some of its constituent elements in interaction. This may be presented as a painting or a photograph in slide or poster form. It must be understood that the slides or posters here being discussed are very different from oridinary visual aids in the depth of the interactions they are expected to facilitate.

When people are presented with the coded representation, they tend to describe what is seen by taking apart the situation, which in turn facilitates the discovery of the interaction among the parts of the disjoined whole. As thought flows back from the various parts, the situation itself acquires new meaning. Since the coded situation represents a part of the reality of the people, they begin to identify the aspects under discussion with the concrete situation in which they find themselves. Thus we can explain conceptually why individuals begin to behave differently, once objective reality has ceased to look like a blind alley and has begun to appear as a challenge which persons must meet.

In the preparation of the codifications we must once again remember that these are not ordinary visual aids, and therefore, there are special principles which must guide us. First of all, the situation represented must always be a situation which can be easily recognized by the people. Otherwise they could never understand their own relation to this reality nor correct their distorted perceptions. Also, the thematic nucleus represented must be neither overly explicit (which would be mere propaganda, stating something rather than bringing about a rational decoding) nor overly enigmatic (which would turn into a puzzle or guessing game). Then Freire speaks of the codifications being organized as a "thematic fan". As the decoders reflect on the codifications, the latter should open up in the direction of other themes. The process of searching for meaningful thematics should include a concern for the links between themes, a concern to pose these themes as problems, and a concern for their historical-cultural context. Thus, the preparation of the slides or posters for the investigation of thematics must be done with a realization that these are to provoke an investigation of the people's thinking--thinking which occurs only in and among persons <u>together seeking out reality</u>. Even if the people's thinking is superstitious or naive it is only as they rethink their assumptions in action that they can change. The task of the dialogical teacher in an interdisciplinary team working on the thematic universe revealed by their investigation is to "re-present" that universe to the people from whom he first received it--and "re-present" it not as a lecture, but as a problem.

IV. THE USE OF THE METHOD OF PAULO FREIRE IN NUTRITION EDUCATION

A. Nutrition Education as a Part of a Global Effort

I believe that in the ideal situation nutrition education should be a part of a global effort for liberation from hunger, disease and inhuman conditions, a joint effort of people and technical staff for achieving first and foremost a humanizing situation. This implies conditions in which the people are acting as Subject and not passively receiving information or being acted upon as objects. It is more than just "participation" of the people because it involves a whole basic philosophy and motivation on the sides of both teacher-students and student-teachers. Nutrition education then is part of "conscientization" and the awakening of critical awareness among people who have many deprivations, including food and nutrient deprivations.

The idea of incorporating nutrition education as a part of a larger effort is not new. It was suggested by Dr. John Bowers (President of the Josiah Macy Jr. Foundation, N.Y., an organization which has made a major effort for delivery of health services in developing countries) at an International Conference on Prevention of Malnutrition in the Pre-School Child in 1964:

> "I doubt if nutrition should 'go it alone'; rather, I see the nutrition message as an essential element in a more comprehensive adult education program, using every appropriate channel of communication to reach its target. I see it especially taking an important place in the new World Literacy Program which is gaining momentum under the United Nations General Assembly and UNESCO." (Bowers, 1966: 278)

B. Nutrition Education as a "Dialogic Exchange"

Since the global effort that we are discussing is much more than imparting facts, the "nutrition message" cannot be merely an addendum of nutrition statements included in an adult primer. Rather, the central problem is the creation of a humanizing set of conditions (basic to which is personal decision-making) through a problem-posing education. Therefore, the nutrition problem must be posed and the long slow process of working out solutions must be gone through by the people, with the specialists supplying information when it is requested.

Bowers also suggested, in the same presentation mentioned above, the use of "topic study" which may be compared to Freire's "thematic investigation":

> "Topic study is a technique of action-research based on a number of simple principles of education: for example, that before you can teach you must learn; that education should begin

> from where the learner is; that communication should be a two-way process; that 'feedback' from receiver to sender improves communication. A topic study is intended therefore, to find out what people do, know, think and believe about the subject (say, child nutrition) and to marry this with what the specialist says they ought to think and do. And, believe me, such marriages often need a lot of adjustment." (Bowers, 1966: 274)

A comment may be added here--a marriage where all the adjustment or modification has to be made by one party would be a very poor one indeed!

To persuade people to accept information is not an educational activity. In speaking of agricultural extension, Freire makes a point which is applicable to nutritionists in their role as educators:

> "Agronomists are specialists who work with others on the situation influencing them. However, from a truly humanistic point of view, it is not for them to extend, entrust, or dictate their technical capacities, nor is it for them to persuade by using peasants as 'blank pages' for their propaganda. In their role as educators, they must refuse to 'domesticate' people. Their task is communication, not extension." (Freire, 1973 (2): 97)

This communication implies true dialogue rather than a "technical aid" conception of education which anesthetizes those receiving the help, leaving them uncritical in the face of their surroundings. Frequently those wishing to give technical assistance do not realize that the process of communication cannot ignore socio-cultural conditioning. Instead of taking their own conditioning as well as that of the peasants into account, they immediately conclude that the peasants are incapable of dialogue. The next step is cultural invasion and manipulation. Technical aid which omits true dialogue is as much a "band-aid" approach to development as the distribution of food or other commodities.

Carroll Behrhorst, M.D., who has been working with the Indians in Guatemala, challenges many of the presuppositions on which health care systems are designed. The innovative features of his very successful project are that he makes health care available to the people on their own terms and holds that the provision of basic health care requires a multifaceted approach to development. He lists (Behrhorst, 1974) his present estimate of priorities for services in the following order: social justice, land tenure, population control, agricultural production and marketing, malnutrition, health training, curative medicine. His team is made up of workers in the hospital and clinics, medical and agricultural extension and family planning programs. They work as a team with each concerned with the work of the other, each entering into the decision-making process and all listening to and responding to the people.

Dr. Behrhorst says that community health programs may look good on paper but they often fail because they have been designed solely by professionals and have not started by helping the people on their own terms. Freire states that many political and educational plans have failed because their authors designed them according to their own personal views of reality, not taking into account, except as mere objects of their action, the persons to whom the project was directed. It seems to me that what Behrhorst and Freire are both warning is against the grave error that professional people commit when they enter a village or urban center with a model all prepared either on paper or in their heads--a sort of idea or myth to be concretized. Rather they must approach the people with the attitude that they will all learn together in dialogue and exchange. This cannot be done on the level of the individual; it does not take place in abstract beings, but in real men and women in social structures.

C. Suggestions for the Use of Freire's Method in Nutrition Education

At this point, I would like to explain how I think the method of Paulo Freire could be used in nutrition education under favorable conditions. Then I will indicate in what ways certain limitations prevented a complete use of this method in my project. In the section on Conclusions a further analysis will be given.

1. An Ideal Plan

The nutrition education plan which I would consider ideal would begin with the formation of a team made up of a sociologist, anthropologist, literacy specialist, health worker and agronomist, as well as the nutritionist. Freire's method of investigating the community would be followed. Where this could be done in a whole country, or a region of a larger country, planning would first involve the choice of representative areas for study. In each area the team would be enlarged to include members of that particular community.

Observations of the nutritionist would emcompass the following:
(1) Attitudes towards food--preferences, taboos, myths
(2) Food-related vocabulary and ways of speaking about foods
(3) Eating habits--times of meals and social customs, frequencies of various foods; division of food among family members
(4) Nutritional status--anthropometric indicators, clinical signs.

Most of the nutritional status data and dietary intake studies should only be done when the interest of the people prompts them to want to know the results of such an investigation. This would probably happen after some "problematizing" (codification and decoding of themes) had already been done in community meetings. Codification of the nutritional themes should be integrated in the overall educational program. Community meetings should be the arena for decoding situations and planning actions. Evaluation techniques are part of the ongoing educational procedure.

2. The Advantage of an Interdisciplinary Investigating Team

Those who work with poverty are often tempted to intervene massively and rapidly with the expectation of quick results, yet the effort may sometimes be disappointing because of insufficient knowledge of the human and environmental variables and their interactions. (Young, 1970). Edozien (1970) points out that malnutrition itself is not an isolated problem; it is a reflection of health and an index of the social and economic wellbeing of a community and must, therefore, be attacked as part of a general program for economic and social development. Bell (1970) suggests that since malnutrition derives from a complexity of factors, action to combat it must be based broadly on the leadership and cooperation of several disciplines, linked together in a common plan, with sector programs each comprising specific projects with feasible targets. I would go one step further and say that the overall action program would benefit from having these sector programs planned in a team atmosphere of investigation such as that proposed by Freire in the study of the "thematic universe". It is exciting to imagine how a country (let us take Guinea Bissau as an example: small, newly independent, idealistic, and desirous of a "global social process") could involve the Ministries of Education, Agriculture, Health and Nutrition in a study with the people to formulate the sector programs using problem-posing education.

D. Limitations to the Use of the Method in the Project to be Described

An all-encompassing program like this could only be considered in a favorable political situation, and certainly could never be attempted in a short-term project. However, some preliminary questions might be answered in projects of limited time. The project to be discussed in this report suffered many limitations which prevented the carrying out of anything like the proposed ideal plan. A three-month period is not sufficient for any real testing of the method. There were practically no resources available and the political situation was such as to prevent any encouragement of critical consciousness. However, a plan was devised which enabled the carrying out on a small scale of some parts of the method, sufficient to be of value as an initial exploration and of benefit in that the results suggest that a larger and longer effort is justified.

V. Project Design

A. Purpose of the Study

The project described in this report attempts to answer the following questions: (1) Can simple unlettered people be involved in meetings about nutrition in such a way that they become aware of the problem of malnutrition and want to do something to alleviate its

consequences? (2) Can this be accomplished by the use of posters as coded situations which in the uncoding lead to group understanding of the nutritional situation? (3) Can they see the problem as a community problem so that they will attempt to work together to solve it and thus experience mutual support? (4) Will the response of the people depend on the extent of previous community organization, familiarity with meetings, etc.?

B. Target Group

The target group of the nutritional action of this project was children under four years of age. Breast feeding is a universal practice and only in exceptional circumstances is it discontinued before one year of age. The only weaning food used to any extent in this part of Northeast Brazil is "papa", a gruel made from manioc flour or cassava. After the child passes the first birthday, he or she may be given fish or rice during seasons of plenty. During certain times of the year, when there is a scarcity of fish, "papa" is considered to be sufficient for the babies. This practice often leads to a situation which leaves the child subject to kwashiorkor following some infection. Severe clinical marasmus such as may be encountered in cities such as São Luis is rare in the rural areas, probably because of the breastfeeding practices. Protein-calorie malnutrition as evidenced by underweight and small stature is common. This is not surprising since manioc provides little protein and its bulk prevents ample calorie intake.

Although we agree with those who challenge the making of the "protein problem" into something more than it should be (MacLaren, 1974), we believe that the children in the area studied belong to the five percent affected by a diet lacking in protein. The concensus of opinion among several doctors of the State of Maranhão is that kwashiorkor is a serious problem for the poor. (Those who said no to this question agreed that frequently children are brought to them with bilateral edema of the lower extremities, as well as "pellagroid" lesions.) This fact led to the choice of topics which stressed the need to include protein in the child's diet as a means of preventing "enchaçao" (kwashiorkor).

C. Area Investigated

1. General Location of the Villages

The rural settlements investigated were in the State of Maranhão of Northeastern Brazil, which may be noted on the maps of Appendix 3,4 and the county of Alcantara, around the city of the same name. Transportation for most of the people is on foot or sometimes by way of the sea in small boats.

2. Criteria for Choice of Villages

The choice of villages was based on an attempt to find four communities as nearly alike as possible in size and conditions, both of natural location (e.g., closeness to fishing areas) and material development. The one desired difference was in degree of community organization and the resulting influences. Since, as has been noted, there could be some difference in receptivity of an educational program such as the one planned, depending on the development of "community spirit", the four villages were chosen according to varying degrees of formal organization of the community. Two of them were among those included in a Church program of "comunidades de base" or "basic communities". In this program the Canadian priest in Alcantara makes regular monthly visits of orientation and the people have weekly meetings. The program is aimed at changing the attitude of superstition in the religious expression of the people to one of mutual help and working together to make a better world. A young agricultural technician visits about every six weeks to give advice on the communal plantations of rice which were started two years ago, and on a recent experimental plantation of beans. The village of Canelatiua has been participating in this program for several years and is the most advanced in our concept of community organization. Cajueiro also participates but has a slightly different type of organization in that all the families there are descendants of the same small group of former slaves and the community shows a strong "tribal" atmosphere. The two other villages have experienced no outside influence on their community organization. Manival, which is the easiest of access of all four villages, has all the homes in a row on either side of the road. It seems likely there would be more contact here with people from other villages, as well as among the people themselves, than there is in Paquatiua, the fourth village, where the homes are scattered through a dense wood on hilly land with only narrow paths connecting them.

Table 1. Characteristics of Community Organization of the Four Villages

Community Organization	Villages	Characteristics
"Basic Church Communities" involving regular meetings and communal activities	Canelatiua	Western type organization
	Cajueiro	Tribal type organization
No outside influence	Manival	Houses along in a row, access to road
	Paquatiua	Houses scattered throughout the woods

D. Design of the Study

1. Visiting

About five weeks was devoted to visiting the people of the four villages, each made up of about thirty homes. During the visiting an attempt was made to find out how the people think and feel about food and the feeding of children, as well as about underweight, illness and death of young children. A favorable atmosphere for learning on the part of the observer and openness on the part of the people was maintained. Instead of questionnaires or forms that would be constraining and unfamiliar to the people, an ordinary copybook of the type used in the schools in Maranhão was utilized for noting observations.

A little trick inspired by the anthropological work of Sister Inez Hilger (1966) helped to put everyone at ease. At the first house I came to as I began the visiting, a young girl was just finishing cutting several series of sticks, each larger than the other, from about 10 to 24 inches. I asked what she was going to do with those and she informed me that they were to make a "garrapuca". When I asked what that was, she ran to call her brother who set to work and soon had a fine trap for small animals made with the sticks and some vines to hold them together. They demonstrated how the trap worked and I made sketches of it in my notebook. I explained that I had many things to learn and I wasn't very good at remembering so I wrote down new words and names in my copybook. At the next house I drew a "curio" (a type of bird) and then "piaba" (a tiny fish) drying in the sun on the thatched roof. Soon children came running whenever they saw me to get a look at the sketches they said were like "fotografias". It was easy then to write down people's names, birth dates of young children, breast feeding data, and 24-hour recalls of food frequency for those under four years old. People wanted to help me to learn about their life. I drew maps of the villages with each person's home marked on it and everyone enjoyed checking to make sure I hadn't forgotten anyone's house, or even the common sheds used for processing "mandioca" (manioc).

2. Meetings

a. Preparation for Meetings. It was decided that the mortality and morbidity of young children comprised what in Freire's terms would be called a "limit-situation". An attempt was made to "codify" existential situations which when discussed could bring up such ideas as: the illness and death of young children is a problem not only of the parents but of the whole community; nutrition is linked to this problem (need for protein); there are some things which can be done to alleviate the problem (feeding of fish, "caldo de peixe" (water from boiled fish), and fish powder (tiny fish ground up)).

b. Number of Meetings. It was planned that the codified material could be discussed and some plans formulated in three meetings. This happened in Paquatiua. However, in Manival and Canelatiua these stretched

out into four. Heavy rainstorms, washed-out bridges and impassable roads brought about the need to cover the same material in two longer sessions in Cajueiro.

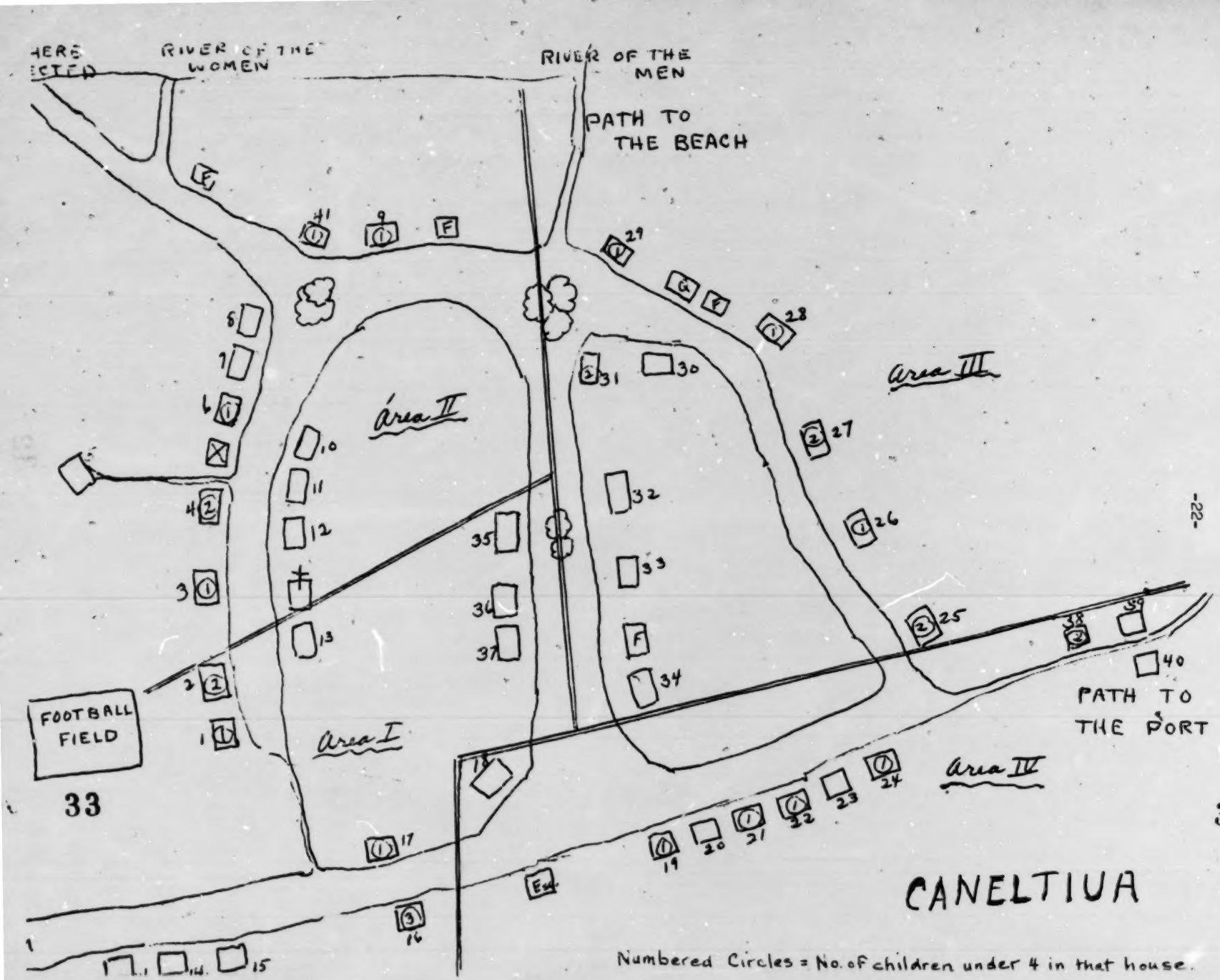
c. Records. Numbers of men and women attending meetings were recorded. Meetings were tape recorded and transcribed. The tape recorder was used without explanation in Manival and Paquatiua. The tapes were treated as confidential material, erased after transcription without identification of speakers. The people of Canelatiua and Cajueiro recognized the tape recorder immediately because the agricultural technician uses one. In Cajueiro it produced no comment, but in Canelatiua I felt during the second meeting that the tape recorder might be influencing the participation so in the third and fourth meetings it was used only before the meeting to animate the group, recording group singing, and playing it back.

3. Organization of Villages for Study of Nutritional Status and for Care of the Health of Young Children

a. Division into Areas. When the participants of the meetings decided (as they all did) that they wanted to do something as a community to learn about the health of the young children and to help to better it, a map of the village was made. The homes were divided into areas of about ten each, with each area containing approximately equal numbers of children under four years of age. A sample map is shown on the next page.

b. Coordinators. A coordinator for each area was elected at the meeting. His or her duty was to help in the gathering of sociological and nutritional status information, and to keep an eye on the health of the little children in that area. If they seem not to be growing properly, the coordinator will talk with the parents to see if the children are eating well and getting some protein. The coordinators meet together sometimes to talk over, and help each other remember, the things they learned about "enchaçao", feeding young children, etc. They will designate a person to arrange with the nurse in Alcantara (as soon as she gets the assistant who is supposed to arrive in a few months) to come to give vaccinations. When she agrees to come, the coordinators will advise the parents of the children in their area and gather them together at the time and place agreed upon. They will ask the nurse for advice and do all they can think of to promote the health of the children.

c. Gathering Information. Each coordinator was given a folder in which there was one record sheet for each family in his or her area. This plan was rather loosely modeled after one elaborated by Dr. Florentino Solon (1974) of the Philippines. The format was kept as simple as possible and the advantage is that the coordinator living so closely with his neighbors already knows most of the information and no one need be subjected to unwelcome questionnaires. When necessary, a coordinator who was illiterate could request help from a


HERE
ECTED
RIVER OF THE WOMEN
RIVER OF THE MEN
PATH TO THE BEACH
Area II
Area III
Area I
Area IV
FOOTBALL FIELD
PATH TO THE PORT
33
34
CANELTIUA
Numbered Circles = No. of children under 4 in that house.

"secretary". When I collected the folders to check them, I transferred this information from the Portuguese record sheet to a sheet in English and then returned the folders. I already had birthdates and food frequency data from my notebook of visits. On the day appointed, the coordinators made sure that all of the children they are responsible for arrived at the central place for weighing and measuring.

VI. THE VILLAGES STUDIED

A. General Characteristics of the Area

The area in which this study was carried out is classified as part of Brazil's Northeast, but Maranhão and its neighbor Piaui, comprise a distinct subregion (the Midnorth) which in terms of climate, vegetation and history is transitional between the semi-arid Northeast (sertão) and the extremely humid Amazon region. The temperatures stay between 26° and 27°C (about 81°F) although the burning rays of the equatorial sun are quite intense. The location of the State of Maranhão and the City of Alcantara (just across the bay from the capital, São Luis) have been noted on the maps (Appendix 4,5). Alcantara was referred to as the dying city or rather as "a velha cidade morta" (the old dead city) by Lopes (1957). The ruins of the summer villas which belonged to Portuguese barons before the country's independence still poke through the overgrowth. The remains of beautiful tiles, iron balconies and imported stonework speak of former opulence. However, it now resembles a bombed-out city where only the poor remain. Communication with São Luis is by small sailboat and twice a week by motorized sailboat.

B. People of the Area

Descendants of slaves and of former prisoners (the State Prison used to be in Alcantara) make up a sizeable proportion of the population outside the city in the County of Alcantara. Most of the people are of the type commonly called "caboclo" or "juçara". Their hair is black and curly but not kinky, their skin is dark but of a tone different from both the negro and the mulatto, and their features show traces of the Indian. They are the product of a slow and continuous miscegenation in which all three ethnic types contribute their part.

C. Four Villages of Alcantara: Canelatiua, Cajueiro, Manival, Paquatiua

1. Isolation and Possibilities of Contact with Outsiders

The four "povoados" (settlements) studied are all fairly close to the ocean which provides means of transport and a source of fish. Land transportation is still chiefly on foot. Only the mayor of Alcantara and the priest have jeeps. Canelatiua and Cajueiro first began organized community action by building roads with the priest who

worked with them and furnished the mechanized help--a jeep and a tractor and later on a grader. Before that time land travel was on foot or horseback, and during the rainy season was impossible. The roads are primitive and a jeep still can't make it in the rainy season. Canelatiua is about 30 kilometers from Alcantara, Cajueiro 16 km, Paquatiua 7 km, and Manival 6 km.

2. Foods Available

People from all four villages plant "mandioca" which is the staple foodstuff. It is planted in fields distant from the home and a part of the crop must be paid to the landowners. Land tenure was not investigated so no data can be given here, but evidently the sharecropping system is part of the problem of the people. In Canelatiua, except for two families which have small gardens (one with onions and another with onions and squash--and this latter is a family from Ceará), there are no fresh vegetables. Corn is grown but was out of season during the time of the project. About twenty-five who participate in the community plantings have rice and about fifteen have recently planted beans for the first time. Similar conditions exist in the other communities except that fewer grow beans and rice. Rice was advocated a few years ago; and fortunately, because approximately 75% of the last crop of manioc rotted because of excessive rains. Rice is now somewhat supplanting manioc as the staple, although most people expressed dissatisfaction with this change of custom. As will be seen, chickens and pigs are raised by many people but this does not give an indication of what is being consumed. Except for what is eaten on special feasts, eggs and meat are usually sold or exchanged for cloth or other necessities.

The term "fruits", as marked on the questionnaire (to be mentioned later), does not have the same meaning as in industrialized societies because oranges, tangerines, lemons, bananas, guava and papaya all grow in the road and behind houses and are considered to be the property of all. At other times of the year mangoes are plentiful. However, fruit is not usually given by the parents as food. The children pick it from the trees and eat it when they feel like it. Young children often are given it by older ones who are good about sharing.

Cooking is done on a clay oven or in an iron pot of charcoal. "Farinha de mandioca" is the form in which manioc is eaten by adults. When the root is taken from the ground it is soaked in water several days, ground and toasted by an old Indian process. This is usually done by a couple of families working together to prepare large quantities. No further cooking is needed at the time of eating.

3. Living Conditions

Life is simple for all--the continual struggle to obtain food and maintain a shelter. Two or three homes in Manival and Paquatiua and about six in Canelatiua have cement floors and tile roofs. The others all have beaten earth floors and palmleaf (straw) roofs. Walls are made of sun-dried clay.

Sanitation does not exist in these villages. The one exception is in Canelatiua, where there are two latrines. Instead, people usually use a certain spot in the woods behind the house with a log to mark it off and after some time cover it over and move to another. Water is carried in earthen jars or large cans from the river in Canelatiua and Cajueiro, and brought from springs (which are much lower than the ground level of the homes) in Manival and Paquatiua.

Canelatiua has two stores and the other three villages have one. All are essentially the same--a small room with a wooden counter. There is a scale on the counter and a few rows of shelves on the wall behind it. The shelves are sparsely stocked--mostly with bottles of "cachaça" (a crude type of strong rum), kerosene, some soft drinks (used only on very special occasions with one bottle shared by several people), sugar, salt, coffee, matches, sometimes cornstarch, perhaps a few eggs, a sack of hard candies, and cigarettes (sold one at a time as are the candies). The eggs and often coffee, salt and liquor are obtained locally but the other items must be brought by sailboat from Alcantara or São Luis and carried up steep paths by men or oxen. Clothing (or rather cloth to be made into clothing) must be bought in these cities either personally or by a relative or friend.

The school in Canelatiua functions for second grade in the morning and first grade in the afternoon. Cajueiro has a first grade class, but the school in Manival ceased to function last year because the teacher never got paid. A few children from Paquatiua used to attend class in Manival because their school had been even more short-lived. For purposes of the questionnaire the person was called "literate" if he or she had been through first grade. Naturally, these people can't all read, but this minimum of schooling gives an indication of some exposure to systematized thought. Only very rarely does a stray newspaper reach these villages. Information on population, "literacy" and other statistics of the villages is given in the following tables.

Table 2. Populations of the Four Villages

Village	Population	Adults	Children under 14	Children under 4
Manival	129	79	50	17
Paquatiua	113	79	34	12
Canelatiua	201	107	94	31
Cajueiro	167	89	78	24

Table 3. Comparisons of Number of Families, Mean Family Size and Mean Number of Children

Village	No. of Families	Mean No. in Family	Adults in Family	Children under 14	Children under 4
Manival	28	4.6	2.8	1.7	0.60
Paquatiua	28	4.0	2.8	1.2	0.42
Canelatiua	41	4.9	2.6	2.2	0.75
Cajueiro	27	5.9	3.1	2.7	0.85

Table 4. Percentages of Persons Who Have Attended at Least One Year of School in Each of the Four Villages

Villages	Percent of Adult Men	Percent of Adult Women*
Manival	32.1	34.6
Paquatiua	21.7	20.8
Canelatiua	60.5	63.9
Cajueiro	19.2	20.0
Average	36.5	37.8

* It is not unusual in Northeast Brazil for girls to attend the first two years of school in numbers equal to or greater than those of boys.

Table 5. Comparison of Numbers of Chickens and Pigs in the Villages

	Chickens		Pigs	
Villages*	Total	Mean No./Household	Total	Mean No./Household
Manival	81	2.8	27	0.9
Canelatiua	196	4.7	96	2.3
Cajueiro	147	5.2	89	3.1

* Numbers of chickens and pigs were not obtained for Paquatiua.

VII. THE COMMUNITY MEETINGS

A. Location

Community meetings were held in homes or shelters that had been built to function as schools. They were held at night so that all would be free to attend.

B. "Coded Situations" (Posters)

The discussions centered around situations (or children) depicted in posters, similar to Freire's "coded situations". The posters were of two kinds: paintings done as realistically as possible from slides of life in Maranhão, and posters prepared in Ethiopia by Andreas Fuglesang, a Swedish communications expert.

Fuglesang (1973 (2)) reports on the fact that certain pictorial manners are more suitable than others for communication with a population that is pictorially illiterate. The line drawing is a poor way of presenting a message, the silhouette performs a bit better (but there are limits to what can be expressed by means of silhouettes), and the square photograph is better yet. However, the details and contrast of the background of the photo are often distracting, so the most effective way of presenting a message pictorially is by "blocking out" the main elements relevant for understanding the total picture and eliminating all unnecessary details. Using this method, Fuglesang has prepared a series of posters for nutrition education of mothers of young children in Ethiopia. Since the people of Maranhão have a heavy black influence in their mixed racial features, the picture from Africa could easily pass for some taken in that area. The only detail which could be detected by one who was searching for differences, occurred in a poster which showed a mother sitting on a seat which was round and slightly lower than the square stools common in Maranhão.

The paintings were done by first projecting color slides of certain scenes of life in Maranhão onto white paper and tracing the outlines of figures. Then the figures were painted without any background details. These were in color (as contrasted with the black and white photo posters) since that was the only way they could be made realistic-looking.

C. Content of the Meetings.

1. Overall Plan

The original plan allowed for three community meetings in each of the four villages. As has been noted, this was sometimes expanded into four meetings and, once, compressed into two rather long meetings because of the inaccessibility of the locale. However, the material covered was the same in all villages, taking in the following topics:

Figure 1. The meeting in Manival. Note the sole illumination--an incandescent kerosene lamp.

Figure 2. A few members of the group at the meeting in Paquatiua. Note the poster showing the healthy baby.

(1) Problem of Infant Mortality and Morbidity--A Community Problem.
(2) Review of 1st Meeting--Nutrition of Young Children--Organization of Community (depending on response of people).
(3) Review of 1st and 2nd Meetings--Nutrition and Growth--Results of Measurements.

The meetings were recorded on tapes and to some degree transcribed. The following are small excerpts from meetings of different villages just to give an idea of the treatment of the topics.

2. First Meeting

(1. Painting of a small blue and white coffin being carried by young girls with flowers and with a man walking beside them)
-"You have often seen a scene like this, haven't you?"
-"Me--no."
-"No?"
-"No, I never saw a picture like that."
-"But in reality--have you seen a dead child being carried to burial?"
-"Oh, Yes."
-"Yes, many times."
-"Is the death of babies a matter of concern just for the parents or for everyone in the community?" (Varied answers)
-"Is it a matter of concern for all? Why?"
-"I think it is. Because this is a Christian community and we should all be interested in each other."
-"Yes, that's so. But besides that, besides the fact that if a family is hungry, we should share our food with them or in trouble, help them; what other reasons are there for being concerned?"
-(Silence)
-"You (in Canelatiua) were all here together earlier this evening listening to the radio program on how to grow community gardens of vegetables in order to get vitamins, weren't you?"
-"Yes"--"That is right."
-"In order to make children and adults strong, right?"
-"Yes."--"That is what they said."
-"Have you ever done any planting together as a community?"
-"Yes, we planted rice together last year and this."
-"When the community does something together, works together to solve a problem, doesn't this give a support to everyone?"
-"Yes, it's good to work together. It makes a better place to live."
-"Would this village be a better place if all the children looked like this?"
(2. Poster of a healthy, happy baby.)
-(Conversation about healthy babies.)
(3,4. Posters showing a child with marasmus and one with kwashiorkor)
-"Have you ever seen a child like this?"
-"Yes, very sick."

-"Another sick child--notice the feet. How are they?"
-"Swollen."
-"Have you ever seen a child like this?"
-"Yes, he has 'enchação' (great swelling--the common name for kwashiorkor.)."
-"Are there any children here now who look like this?"
-"Who have this sickness?"
(Silence)
-"Do you know any?"
-"No." "No, I don't."
-"No, I haven't seen any at this time either, but at other times there have been children like this?"
-"Yes." "Yes, sometimes that happens."
-"Yes, I lost my second child that way."
-(Conversation and explanation of the causes of the sickness--nutrition information. Return to the concept of this situation as a community problem.)
-"When you have a problem can you sit down and wait for anyone else to solve it? Do you know anyone who would help you?--the government?--the priest?"
-"Yes."
-"Yes?--You can sit and wait for someone to help you?"
-"I think so. I think the government will help us."
-"Did you ever do that?--wait for the government to help?"
-"Yes."
-"What happened?"
-"Nothing."
-(General laughter--agreement that no one will solve our problems for us.)
-"Then who is going to solve this problem?"
-"We, ourselves. We are the only ones who will do anything."
-(Ending with conversation about the fact that they have to solve the problems, they don't have much hope but they should talk together about the problem of sick children and try to find a solution.)

3. Second Meeting

-"What are some of the things we talked about last time?"
-(Silence)
-"What about when we discover a problem in the community--what should we do?"
-"Have a meeting and talk about it. In any case, be united. 'In union there is strength.' Those children who get sick that way (a nod to the poster) are going to die. They have to be given the right food or something, or medicine, or they will die. Do you know how it is? They die that way, you know?"
-"Yes, and we talked about that one with the coffin. That's the father walking behind the coffin."
-"Have any of you had to see your little children in a coffin?"
-(General murmur)

-"Yes, I did."--"Me too."--"My two little boys."--"Yes."
-"And do you think this is a problem of the parents only?"
-"No."
-"Why?"
-(Silence)
-"What about the future? How is the health of the children going to affect the future?"
-"If they are healthy now, they will probably be healthy when they grow up."
-"Yes, but Luis was sick when he was a child and now he is strong."
-"Yes, but if he hadn't been strong then he might have died."
-"What about this village? Do you think it will benefit from having healthy people?"
-"Yes, our village will be better if people are healthy."
-"We should buy medicine for the children so they will all be strong and will grow up healthy."
-"Sometimes medicine might be necessary when the baby is sick but wouldn't it be better if we could keep the baby from getting sick in the first place? Shouldn't we try to do that?"
-"How?"
-"Let's look again at the other posters.--This child, what about him?"
-"He had measles."
-"Yes, or he might have had diarrhea. Why did he get like this after he had measles?"
-"Lack of food."
-"Yes, a lack of the right food. He was only eating 'papa' (gruel made from cassava) and didn't get any protein."
-(Further explanation of kwashiorkor and the need for protein in young children)
(5,6. Posters showing a mother breastfeeding her child and the same mother giving her child supplementary food)
-"You asked how we could have healthy babies without buying a lot of medicine--how we could prevent sickness in the baby. Let's talk about these pictures."
-(Discussion and related nutrition information)
-"Does everyone think that the health of the children is a problem of the community?"
-"Yes."--"For my part, I think it is."--"Me too."
-"If it is a problem of the community, who is it who ought to try to solve the problem?"
-"The parents and us--the community."
-"Won't anyone else do it for us?"
-"They just tell us they'll help us but they won't do it for us."
-"Would you all like to get together now and decide as a community to take an interest in the problem of the health of young children?"
-"I would."--"I would."
-"Only two people?"
-(General murmur)

-"The parents of children under four?"
-"No. If we want to make a community plan it should be because almost everyone in the village wants it, not just the parents of the young children."
-(General babel of discussion, confusion over who is to participate.)
-"Let's take an example. You, Sir, your children are all grown, aren't they?"
-"Yes, ma'am."
-"Are you concerned enough about the health of the little children to come to meetings and talk about things that can be done to solve the problem?"
-"Yes, ma'am. I think it's very important for the whole village to be concerned about this."
-"How do the rest of you feel about it? Do you want to do something?"
-"What can we do?"
-(Proposal of a twofold plan: 1. To examine children to find out which ones need special care. 2. To elect coordinators of health for every ten houses in the village.)
-"You mean that this coordinator is a person who will be responsible?"
-"Yes, responsible for perhaps ten houses or families."
-"Responsible for... You mean he should...?"
-"He, or she, knows well the families in those ten houses. He, or she, is concerned with the little children, and notices how they are growing. When one is thin or not growing well, the coordinator talks with the parents to find out if the little one is eating well, tries to find out what the problem is, and to help the parents solve the problem. The three or four coordinators can talk together to try to remember the things I tell you about good food for the babies. When there is a serious problem that you don't know how to solve, you can send someone to ask Sr. Rose, the nurse in Alcantara.--How many people would like to have this community plan to care for the health of the little children?"
-(A few timid voices in agreement followed by a more enthusiastic response. Then a cry from an angry young father.)
-"You say that you'll examine the children and tell us which ones are weak. Do you think we don't know that? You think we don't know that our children are sick? So, you'll tell us which ones are sick and then what happens?--So, you'll tell us to take them to the doctor. We <u>could</u> walk the day's journey to Alcantara in the burning sun. If the child lives long enough we may even get to the end of the line at the clinic and see a doctor. So, what does he do? He gives us a piece of paper that says what medicine we should buy. And who gives us the money to buy that medicine? Will <u>you</u> buy that medicine?"
-"No, Berto. I can't buy medicine. And I told you that I'm not a doctor, nor even a nurse, so I really can't help with many sicknesses. But what I've been telling you is that many other sicknesses are caused by, or made worse by, a lack of the right food and sometimes, if you learn more about it, <u>you</u> <u>can</u> get the food your baby needs."

4. Third Meeting

-"It seems that someone here says that he's never going to eat 'papa' because it will make him like the sick baby in the picture."
-"Yes. That someone is right here!" (pointing to the eight-year-old at her side)
-"Yes. But now we'd better explain that. 'Papa' is made from 'mandioca' and we all know that is good. But, by itself, it's just not enough. The same way if a man eats 'farinha' all the time and never has any fish, he'll get to be weak. And a child needs something besides 'mandioca' even more than a man because it's growing--How big is a baby when you stop nursing it? Show me."
-"This big."
-"How big is it a year later?"
-"Like this." (Murmuring as people begin to think about and to be aware of the difference in size.)
(7. Poster of children of different ages showing growth--Discussion of growth.)
-"What does the baby need in order to grow like that?"
-(More murmuring, then--) "Food."
-"Yes, it needs food. Certain kinds of food. 'Papa' is good to give the baby energy, so it can move and play. But the baby also needs another kind of food to grow. What did we call that kind of food?"
-"Protein. A baby needs protein."
-"When I visited in your homes almost all of you talked about something you would like to give to your babies but you had no money to buy. What was that?"
-"Milk."
-"Yes, milk is good for babies."
-"Yes, milk is good but if you can't buy it we have to discover something else you can get for your babies."
-(Discussion to discover possibilities for protein--bits of fish for a baby past one year--tradition says that fish cannot be given sooner--'caldo de peixe' or the juice from boiled fish)
-"But the real problem comes at the times of the year when fishing is not good. Right?"
-"Yes. Sometimes there just aren't any fish."
-"And sometimes only a few fish for many mouths."
-(Discussion which leads to the information that often when large fish aren't available, tiny, tiny fish are.)
(8. Poster of a person using a "pilão" or large wooden mortar and pestle for hulling rice, available in village although people can't always afford rice.--Discussion which leads to idea that in the "pilão" tiny dried fishes can be made into a powder which can be mixed in the baby's gruel.)
-(Return to the concept of growth. A flannelgraph of a Morely Growth Chart to explain the pamphlets given then to each mother showing whether or not her child was "walking on the road of health".)

5. Mistakes and Surprises

In listening to the tapes afterwards, I noted my mistakes which often seemed glaring. For instance, one time I used the expression "to make a study of the children" (that is, examine them or weigh and measure them) to find out which ones needed special care. At the next meeting I said, "Have you talked over together what you want to do? What do you think of the idea of making a study of the children?"

-"Yes, we did talk about it. If you would like to start a school here for the children we think it would be fine!"

My consternation was greeted with--"But everyone thinks that you're here to start a school." This, of course, was due to the use of the word "study" which to them was linked with "school", and unhappily their school had closed down the year before. Also, some other foreigners (Canadians) had a school in Alcantara. I had to admit that the lack of a school for their children was another serious problem and if they wanted to talk about how they could solve that at this meeting then I wouldn't object. If they thought the health of the little children was equally important then "maybe we could talk about that now and then have a meeting about the school later."

At times, answers and comments during the meetings were surprising. Who from this culture supersaturated with meetings would expect of a simple fisherman at his second meeting that he would say--"I think we should think about it again and have another meeting to decide. You see, ma'am, I've lived here for seven or eight years and we've never had a meeting about anything, and I think it would be good to have another meeting."

VIII. FOOD AND NUTRITION OF THE TARGET GROUP

A. Indicators

Jelliffe (1970) lists the following indicators as critical in the study of food and nutrition of young children: (1) Anthropometry, (2) Clinical (occurrence of the major syndromes), (3) Food consumption (intake by pre-school children), (4) Food availability for young children (cost/nutrients).

B. Food Availability

Myrna Ahmed's results in an Andean community suggest that a growing complexity in dietary pattern is intimately related to other areas of growing complexity in the general way of life (Ahmed and van Veen, 1968). In our four villages life has none of the complexities of city life and neither are dietary patterns complex. The food availability for young children is simple to investigate. Below a certain minimum

level of income, other factors such as education seem to have little influence on the complexity of the food intake of the household (Beaudry-Darisme et al., 1972). Since the people in Alcantara live on a subsistence level, the foods that are available to them are extremely limited in variety as well as quantity. There are practically no expenditures for food; only a little sugar and sometimes coffee as well as liquor are common purchases. Money is very scarce and when it is obtained, it is needed for cloth, or for the rubber sandals worn by most people, or for kerosene and matches. Therefore, food for young children must be obtainable without money. Many mothers will say, without being questioned, "I would like to give my child milk, but we are poor. The poor can't afford milk." This fact was borne out by results of the questions on food frequency. Only one family had milk and that was because the father had returned the day before from a long journey and brought a small can of powdered milk as a present for the children. Thus, the food that is available for young children is manioc, fish, crab, rice, shrimp, coffee, tea, sugar, and fruit. At the time of the year that this study was done fish was very plentiful and rice was being harvested. However, less than half the people plant rice, and most of them do not have enough to last the year because rice presents more of a storage problem than does manioc. Fish and other seafood are scarce during many months of the year and since they are considered more important in the adult diet, they are, in effect, unavailable for young children at those times.

C. Food Consumption

Food consumption was studied by means of twenty-four hour recall of food frequency of all children under four years of age. This information, as well as breastfeeding data, was obtained during visits with the mothers or persons responsible for feeding the children.

1. Breastfeeding Practices

In general, breastfeeding is carried on until one year of age and sometimes beyond. The following table gives numbers of age groups of children and indicates whether or not they are being breastfed.

Table 6. Breastfeeding Data on Young Children in Four Villages of Northeast Brazil

Village	Age of Children	Number of Children Breastfed		
		Totally	Partially	Not At All
Manival	below 6 mo.	2	1	
	6 - 12 mo.		4	
	13 - 18 mo.			1
	over 18 mo.			9
Paquatiua	below 6 mo.			
	6 - 12 mo.		2	
	13 - 18 mo.			1
	over 18 mo.			8
Canelatius	below 6 mo.		1	
	6 - 12 mo.		3	1
	13 - 18 mo.		3	3
	over 18 mo.			19
Cajueiro	below 6 mo.	1	2	
	6 - 12 mo.		1	1
	13 - 18 mo.		1	3
	over 18 mo.		2	13

As can be noted in the table there is no tendency in these villages to stop breastfeeding before the end of the first year. It is a deep tradition and there is no alternative, so even though the mother works hard in the fields she still manages to find a way to breastfeed her child. In spite of the fact that there is great respect for the mother's milk, the first milk (colostrum) after the birth of the child is considered not to be good, so it is not given to the child. Rather, a neighbor who is also nursing a child is called in to feed the new baby for a day or two. This woman is believed to contract a relationship with the baby--even years later she is called the "mãe de leite" or "milk mother" and is accepted as a blood relation would be. The child that this neighbor woman is nursing at the time is called the "irmão de leite" or "milk brother" of the baby. The position of "mãe de leite" is highly esteemed in local ideology and there is no trouble finding someone to fill this role for a new baby (Prado, 1973).

2. Food Frequency Study

The twenty-four hour recall food frequency study was done with the mothers of all children under four years of age in the villages, a total of eighty children, and the results were grouped together as shown in Table 7 for ease of treatment.

Table 7. Food Groups and Average Intakes of All Children Under Four

Code word*	Foods Making Up the Group	Mean Score
Energyfd	Manioc, Starch, Sugar	3.43
Protfd	Milk, Fish, Crab, Game, Bird, Shrimp	1.18
Calprot	Beans, Rice, Corn, Bread	0.68
Fruit	Banana, Citrus, Guava, Papaya	0.46
Noval	Coffee, Tea	0.88

* The code words are shortened forms which refer to general classes of foods: Energyfd--foods which provide mainly calories; Protfd--high protein foods; Calprot--foods such as cereals and legumes which are a source of both calories and protein; Noval--substances which have little food value.

Of the twenty foods which occurred in the diet, thirteen were eaten by only one to three children. Manioc, sugar, fish, rice, banana, citrus, and coffee were the only foods which occurred in more than three of the eighty dietaries. Table 8 shows that the frequencies of food groups are similar in each of the four villages.

Table 8. Mean Number of Servings in Five Food Groups Reported on 24-Hour Recall, Among Children Who Are No Longer Breastfed

	Village				
Code Word	Manival	Paquatiua	Canelatiua	Cajueiro	Total
Energyfd	3.60	3.22	2.73	3.42	3.14
Protfd	1.30	1.77	1.47	1.42	1.48
Calprot	0.50	1.00	1.08	0.78	0.89
Fruit	0.50	0.66	0.47	0.57	0.53
Noval	1.20	1.11	0.95	1.00	1.03
No. children	10	9	23	14	56

Other sociological data were included in the correlation study but they were not significant. Of special interest is the fact that there was no correlation between the size of the family or the number of children under fourteen with the frequency of any of the food groups.

D. Clinical Signs

A simple examination was made for the following clinical signs:

depigmented hair	bilateral edema
hair that is easily plucked	pelagroid lesions
conjunctival xerosis	loss of adipose tissue
Bitot's spots	paleness
angular lesions (lips)	apathy
seborrheic dermatitis (ear)	irritability
gingival redness	hepatomegaly
follicular hyperkeratosis	others

Since there was no doctor or medical nutritionist available, I did these examinations myself. Although I cannot claim to be capable of giving a thorough physical examination, I am relatively familiar with the above listed symptoms after having worked for two years in the Instituto de Nutrição of the Federal University in Recife, Brazil and, as part of our research, observed several times the examinations by pediatricians of all young patients in the Children's Hospitals of Recife and of Sao Luis.

No cases of frank marasmus or kwashiorkor were encountered, nor were signs of vitamin C or A deficiencies found. There were a few children who seemed to have enlarged livers, and many who had skin infections which did not appear to be of nutritional origin. The hair of all the children was in a condition that could be classified as from fair to good, although a few had hair that was somewhat depigmented distally but seemed to be better close to the scalp. This fact is not surprising since the study was made during a time of relative plenty. Loss of adipose tissue was not uncommon as is confirmed in the weight and height measurements. Paleness, apathy and irritability often occurred in conjunction with the cases of "fastia" or anorexia discovered during the food frequency study. Five of these cases were linked with fever and thus probably with infection. However, of the eight cases which had no fever, most had a kind of flabby fat and hanging jowls and a "turned down mouth". Most of these children were being fed chiefly "papa" because "they were not hungry". Latham (1967) points out that apathy is an early feature of kwashiorkor and that a poor appetite is a differentiating symptom of kwashiorkor patients from marasmic. As yet we have no way of determining by biochemical tests a pre-kwashiorkor state. Height and weight would not set apart the eight children who had "fastia" and were so apathetic and irritable. Yet, if no change was made in their diet over the year, I would predict that a return to the area would reveal that several of these children had developed kwashiorkor. Certainly observation of children like this would be profitable.

E. Anthropometric Measurements

It was considered sufficient in this study to have height and weight measurements of the children under four. The coordinators of each area made sure that all of the children in their areas were brought to a central place on the day appointed.

1. Height

A fiberglass tape measure graduated in millimeters was fastened to a straight wall when possible or, when the walls were of uneven mud, against a smooth upright beam. A flat board was placed at right angles under the feet.

Children were made to stand erect with feet parallel, heels, buttocks, shoulders and head firmly against the wall or beam, arms handing naturally on the sides, the Franklin plane (lower orbit to external auditory meatus) horizontal. A right angle object was lowered against the upright surface to the head of the child crushing the hair and a measure of height taken to the nearest 0.5 centimeter. When the child was not old enough to stand erect, recumbent length was taken on a table with the head positioned against a headboard, knees held flat and feet flexed at right angles to the lower legs, by placing a right angle object against the heels to register the length on a tape measure fixed to the table.

2. Weight

Weights were taken nude or with a small pair of panties which weighed less than 100 grams. Weight was recorded to the nearest 50 grams. The scale used was a Fillizola baby scale borrowed from the clinic in Alcantara. The scale was taken to a central place in Manival and Canelatiua and adjusted each time to the same one and two kilogram weights. This was especially necessary since the travel was by jeep over very bad roads and the last eight kilometers to Canelatiua had to be by ox. The people from Paquatiua brought their children one or two kilometers to Manival to be measured. Cajueiro was a problem since the last six kilometers had to be on foot with no beast of burden available. Therefore, the ordinary scale used in the small store there was used for weighing the children. This was useful for teaching a concept in community meetings but the results of weights from this village are not shown because they were not considered to be sufficiently accurate. Table 9 shows the mean percents of standards (Boston Standards, Stuart and Stevenson, 1959) of weight for age and weight for height in the three villages where correct weight was obtained, as well as of height for age of children in the four villages plus São Luis. The last named was the result of an attempt to provide a local standard for comparison. Heights were obtained of 73 children of well-to-do families in São Luis by setting up measuring centers in several different places. However, it was impossible to obtain a weighing scale for this part of the project so the local standard had to be limited to height.

Figure 3. Measuring. This photo was taken for purposes of illustration and the tape measure had slipped to one side. Ordinarily it was fastened along the length on a smooth surface of the beam.

Table 9. Mean Percents of Weight/Age, Height/Age and Weight/Height

Village	Weight/Age* Mean	Weight/Age* St.Dev.	Height/Age** Mean	Height/Age** St.Dev.	Weight/Height*** Mean	Weight/Height*** St.Dev.
Manival	78.8	12.3	91.6	6.2	91.4	8.9
Paquatiua	84.6	9.3	95.2	9.2	92.3	15.3
Canelatiua	84.5	13.9	91.0	4.8	98.8	10.0
Cajueiro			87.6	6.1		
Sao Luis			99.3	6.0		

* According to multiple range tests of both Duncan and modified LSD procedures all three groups of children belong to one homogeneous subset; i.e., no pair has means that differ by more than the shortest significant range for a subset of that size.

** Multiple range tests of both modified LSD and Duncan procedures place the results from Cajueiro with Canelatiua and Manival in one homogeneous subset and Canelatiua and Manival with Paquatiua in another subset. Paquatiua alone is in the subset with the well-to-do children of Sao Luis.

*** A multiple range test with the modified LSD procedure (conservative and exact for unequal sample sizes) places all three villages in the same homogeneous subset. A multiple range test with the Duncan procedure (less conservative and only approximate for unequal sample sizes--which these are) puts the values from Manival and Paquatiua in one subset and Paquatiua and Canelatiua in another.

Three children of the four villages were below 80% of the height for age standard and 28 below 90%. (A low percent of height/age is an indication of a much greater retardation than the same percent weight/age.) Of the 52 children for whom we have accurate weights according to the Gomez classification, 25 (48.0%) have first degree malnutrition (75-90% of the standard), 10 (19.2%) have second degree malnutrition (60-75% of the standard), and 3 (5.7%) have third degree malnutrition (below 60% of the standard). There was no significant difference between the sexes in percent of standard height or weight.

F. Correlations Between Dietary Information and Anthropometric Measurements

A Pearson Correlation Coefficients Study was done on all food groups, sex and percents of standard values of height and weight. In the three villages where accurate weights were obtained, of the 38 children no longer breastfed there is no significant correlation between food frequency and nutritional status. This may be due to the

fact that the study was done at a time when there was more food available than during most of the year or because the quantity taken at each meal was a differentiating factor.

G. Reporting Results of Nutritional Status to the Community

Use was made in the community meetings of all information gained in the study. However, the most specific application was of the weights of the children which were placed on a mimeographed copy of the Ilesha or Morely Chart (Nutrition Reviews, 1968). First a detailed explanation was given using the flannelgraph reproduction of the chart shown in Figure 5. When the parents understood the principle that if the dot representing the weight of the child was inside the "Caminho de Saúde" or "the Path of Health" (two lines which represent the approximate range of weights of healthy children at each age), they were given the copy to take home and keep. On the back of the folded sheet is a place for marking the vaccinations of the child. It was hoped that this would be an incentive to the parents to make efforts to get vaccines to the villages.

IX. DISCUSSION AND CONCLUSIONS

In a three-month study of this type no changes can be measured nor hypotheses proven. Instead, let us examine the use of the Freire method in this project and then return to the questions proposed at the beginning as the purpose of the project.

A. The Use of the Freire Method in This Project

Freire's method may be divided into: investigation, outline of themes, codification, and decoding of themes.

1. Investigation

The disadvantage was that there was no team to observe, examine and discuss. The only investigator was the present writer. An attempt was made to come to know and understand the people and to learn from them by "long listening" during the five weeks of visiting, but the one-sided observation was lacking in the dimension provided by a team approach. However, the discussion with the people was a positive factor which should not be minimized.

2. Outline of Themes

This was the weakest point in the attempt to use Freire's method. There was actually no study to discover the "thematic universe" of the people due to a lack of possibilities, especially the lack of personnel and time. I had merely chosen one theme to be investigated and studied with the people, based on my previous knowledge of the

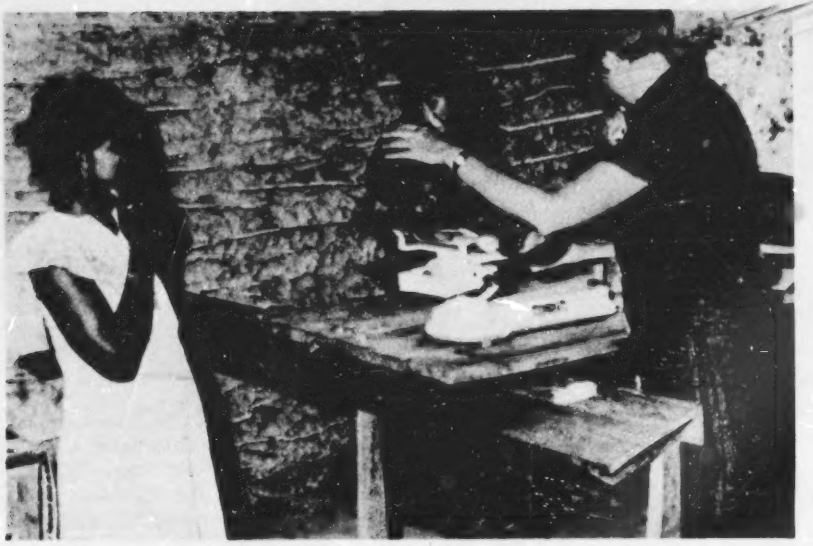


Figure 4. A mother watches anxiously as her baby is weighed.

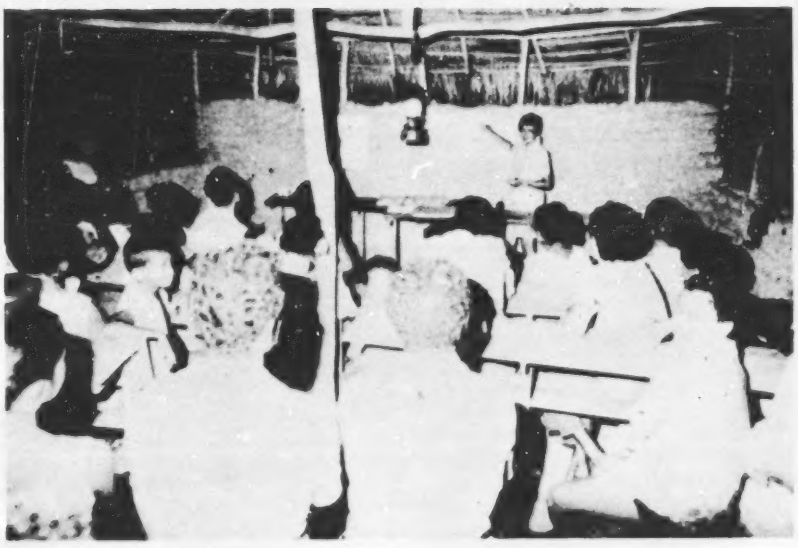


Figure 5. Explaining the flannelgraph of the Morely Growth Chart.

region. This theme proved to be one the people identified with, but I do believe that it would have been of greater usefulness and depth if it could have been worked out as a part of an integrated whole. The opinions and criticisms of team members would have been of great advantage in understanding the theme completely as well as in the provision of supporting themes.

3. Coding of Themes

The one theme chosen was the situation of undernourishment of young children and especially the lack of protein in their diet. Codings were prepared for use in a series of three community meetings. The number of meetings was limited by time but the three discussions were considered to make up a tidy little unit which was useful to the people. They did also serve as an experimental project to give an indication of how more complete series might be entered into.

4. Decoding the Themes

This step is, of course, the real action point of the method, and I believe it was successful. Although I struggled against it, I fell into the trap of talking more than I should have. Still, some people entered into the spirit of the discussions sufficiently that (besides the fact that the nutritional knowledge will stick with them because of their participation) I believe that they passed to some degree from a "semi-intransitive peasant consciousness" to a "naive consciousness" (Freire, 1970 (2))--one which disposes them to a truer perception of the objective conditions of reality.

B. Questions Proposed in the Project Design

(1) Can simple unlettered people be involved in meetings about nutrition in such a way that they become aware of the problem of malnutrition and want to do something to alleviate its consequences? We expect people of an educated background to participate readily in a nutrition program. In the Hyderabad City Program (Swaminathan et al., 1970), it was found that economic and social status, literacy and availability were some of the factors which influenced not only the attitude but also the active participation of the community. Then what about the response of the people living at the subsistence level in an isolated village where the majority of the people are illiterate? First of all, will they come to meetings? Table 10 gives an idea of the attendance at meetings.

A comparison of the average attendance with the number of homes in the village shows that a large proportion of homes must have been represented. People were interested and responsive.

Table 10. Attendance at Meetings in the Different Villages

Villages	No. of Homes	First Meeting			Second Meeting		
		Men	Women	Total	Men	Women	Total
Manival	28	18	14	32	16	12	28
Paquatiua	28	14	12	26	10	8	18
Canelatiua	41	22	4	26	24	9	33
Cajueiro	27	17	15	32	12	20	32

Villages	Third Meeting			Fourth Meeting			Average
	Men	Women	Total	Men	Women	Total	
Manival	16	14	30	15	13	28	30
Paquatiua	11	9	20				21
Canelatiua	33	6	39	9	21	30	32
Cajueiro							32

(2) Can this be accomplished by the use of posters as coded situations which in the uncoding lead to group understanding of the nutritional situation? As Giorgio Solimano said in his talk at Cornell in 1975, "No one makes and carries a sign saying 'We, the Undernourished' like 'We, the Workers' or 'We, the Peasants'. Are people aware of a situation of undernourishment? The transcription of parts of the conversations at meetings shows that the people were involved in the discussions as in a familiar situation. Comments during and after meetings showed that people were at least questioning the old fatalistic attitude and beginning to wonder whether something might not be done to further the health of their children. About a half hour after a Sunday afternoon meeting at which Ilesha Charts were distributed, a discussion was still going on in the school house. As I walked by outside I heard one woman say in a spirited voice, "Well, my baby is below the 'Caminho de Saude' but it's not my fault. It's because I didn't know. Now I know about protein and fish and how children need them. We're all going to try to get our little ones back on the road to health."

(3) Can they see the problem as a community problem so that they will attempt to work together to solve it and thus experience mutual support? When Joaquina, the old grandmother who brought most of the babies of the village into the world, and Brigido, the uncle who is the village philosopher, and Luis, the man who is leader among those working on the community rice plantation, all participated in

the meeting and became interested in the topic, we know it will not be forgotten. These vocal people keep the topic of the health of babies and nutrition's contribution to it before the minds of the people. In Cajueiro it seemed a great drawback that we couldn't get the proper scale to weigh the children. However, as I was leaving the village, the storekeeper, a natural leader who was also the school teacher, who had allowed us to use his scale for weighing the babies, informed me that he was going to weigh all the children every month and mark it on the charts for the mothers to see whether their children are getting better. He thanked me for my help and said that the community was going to work together to try to provide more protein for the children and keep a check on their growth.

(4) Will the response of the people depend on the extent of previous community organization, familiarity with meetings, etc.? The response to meetings did not seem to depend on previous experience. (Remember the fisherman who wanted another meeting.) There was quite a noticeable difference when it came to having an election of coordinators. In the inexperienced villages everyone seemed to think that they should vote for all nominees or for none--it couldn't be right to show favoritism! Probably if I had had time to really come to understand their mentality I would have modified my plan and had them suggest the way to select coordinators. However, as to the discussions themselves, there were few differences among the four villages. I suspect that the coordinators of Canelatiua and Cajueiro will continue their activity without any outside influence longer than those of Manival and Paquatiua, because they are more used to leadership roles from their past experience. But the actual effect on the diet of young children could be equally great in any of the four villages. There were no obvious effects to suggest that community organization either facilitates or retards to any great degree the responsiveness of the people in the use of the method of Paulo Freire.

C. An Interim Solution

In concluding I must admit that I believe this project and all other types of nutrition education in developing countries are only interim solutions. They provide some slight alleviation while we are waiting for the real problem to be solved--that all peoples may exercise their right to a decent life and human living conditions. When incomes reach a level sufficient to feed the family, there will be no need to teach the feeding of protein. The use of the method of Paulo Freire during this interim will facilitate the convergence of forces towards the attainment of humanizing conditions.

"As vezes nem ha casa: e só o chão.
Mas sobre o chão quem reina e agora um homem
diferente, que acaba de nascer."

CANÇÃO PARA OS FONEMAS DA ALEGRIA

Thiago de Mello

"At times there isn't even a house: only the ground.
But on the ground a different person now reigns,
who has just been born."

SONG OF THE SYLLABLES OF JOY

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APPENDIX 1

PAINTINGS USED BY FREIRE IN THE CULTURE CIRCLES

Copies of the paintings by Francisco Brennand, one of the greatest contemporary Brazilian artists, which were used by Freire in culture circles, may be seen in an article by Cynthia Brown (1974: 27-28). In "Education as the Practice of Freedom" (Freire, 1973(1): 60-80), similar drawings used in Chile are shown. Here we will give a brief description of this series of pictures with a summary of the explanation by Freire of their use.

First Situation: (A man by a well--a house in the background) Man and the World and With the World, Nature and Culture. "Who made the well? Why did he do it? How? When?" etc. Two basic concepts emerge: that of necessity and that of work. And culture becomes explicit on a primary level, that of subsistence. By work man submits the world to transformation. But relations among men cannot be either of domination or transformation because they are relations among subjects.

(Note: Freire continually refers to Man meaning, of course, human persons, man and woman. It is only in his work EXTENSION OR COMMUNICATION, (Freire, P., 1973) that he changes that to persons, using s/he instead of he, etc. In these explanations we will continue with the form historically used by Freire at the time of the culture circles.)

Second Situation: (A man and a woman facing each other--plants and animals around them) Dialogue Mediated by Nature. The group is motivated to analyze dialogue, interpersonal communication, the encounter of one consciousness with another; motivated to analyze the mediation of the world--as transformed and humanized by men--in this communication; motivated to analyze the loving, humble, hopeful, critical and creative foundation of dialogue.

Third Situation: (An Indian hunting with a bow and arrow) A Hunter from an Unlettered Culture. What belongs to nature and what to culture?--the bow, the arrow and the feathers belong to culture. The feathers are natural until transformed by work into culture. When man makes implements he creates culture. When he passes on the use and manufacture of implements to younger generations he creates education. Not to be able to read and write is to belong to an unlettered culture.

Fourth Situation: (A man hunting with a rifle) A Hunter from a Lettered Culture. The rifle is a technological advance over the bow and arrow. It represents man's increasing opportunity to transform the world. This transformation is meaningful insofar as it contributes to the humanization and liberation of man.

Fifth Situation: (A cat chasing mice) The Hunter and the Cat. This situation has to do with men and animals as forms of being in the world. Man not only knows but knows that he knows; he becomes an authentic person reflective and intent upon the world. The cat in this situation is not a hunter but a pursuer. As such, he does not make culture, he does not transform the world.

Sixth Situation: (A man making clay pots) Man Transforms the Material of Nature by His Work. By working with clay the men change the materials of nature. The pottery that results is an object of culture.

Seventh Situation: (A ceramic vase with flowers in it) A Vase, the Product of Man's Work Upon the Material of Nature. As flowers, the flowers in the vase are nature. As decoration, they are culture. The asthetic dimension of the product is thus reinforced.

Eighth Situation: (An open book with a poem on one page) Poetry. Poetry, like pottery, is culture but in a different sense. Poetic expression, whose material is not the same, responds to a different necessity.

Ninth Situation: (Two cowboys in characteristic-types of dress--one from the Northeast and one from the South) Patterns of Behavior. The two Brazilian men represent the traditions of two regions--the South and the Northeast. But before the traditions were formed, there was a need to dress like that--one with warm clothing, the other with thick leather clothing. Sometimes the need passes but the tradition goes on.

Tenth Situation: (A group of people looking at a poster) A Culture Circle in Action. On seeing this situation, the Culture Circle participants easily identify themselves. They discuss culture as a systematic acquisition of knowledge, and also the democratization of culture within the general context of fundamental democratization. The preceding situations are discussed in two sessions, strongly motivating the group to begin on the third night their literacy program, which they now see as a key to written communication.

APPENDIX 2

THE USE OF GENERATIVE WORDS, PHONEMIC FAMILIES AND DISCOVERY CARDS IN TEACHING LITERACY

Once the material has been prepared in the form of slides, film strips or posters, once the team of coordinators and supervisors has been instructed in all aspects of the method and has been given its agendas, the program itself can begin. The codified situation is projected, together with the first generative word, which graphically represents the oral expression of the object perceived. For example, the word tijolo (brick) is first placed in a representation of constructive work and discussed in all its possible aspects. Once the word has been noted within the situation, it is presented without the object: tijolo. Afterwards: ti - jo - lo. Beginning with the first syllable, ti, the group is motivated to learn the whole phonemic family resulting from the combination of the initial consonant with the other vowels. The group then learns the second family through the visual presentation of jo, and finally arrives at the third family. Eventually, the three families are presented together on the discovery card:

ta - te - ti - to - tu
ja - je - ji - jo - ju
la - le - li - lo - lu

After one horizontal and one vertical reading to grasp the vocal sounds, the group (not the coordinator) begins to "make" words with the combinations available: loja (store), jato (jet), juta (jute), lote (lot), tela (screen), lajota (small flagstone), etc.

Then the participants begin, on that same first evening, to write. On the following day, they bring from home as many words as they were able to make with the combinations of phonemes they learned. The group itself, with the help of the educator (not the educator with the help of the group), should test the words thus created. A group in the State of Rio Grande de Norte called those combinations which were actual words "thinking words" and those which were not "dead words".

APPENDIX 3

MAP OF NORTHEAST BRAZIL

APPENDIX 4

MAP OF ALCANTARA